

RECEIVED  
CENTRAL FAX CENTER

AUG 17 2006

PATENT  
10/635,829

## BEST AVAILABLE COPY

### REMARKS

1. Applicant notes with appreciation that claims 4, 5, 8, 12, and 29-32 stand allowed.

2. Claims 9, 14, 15, 34 and 35 stand objected to as dependent upon a rejected based claim and were held to stand allowable if rewritten in independent form including all limitations of the base claim and any intervening claims. These claims have been so amended to be allowable and include claims 9, 14, 15, 34 - 37 as a result of the multiple dependent format of claims 9 and 14 before amendment.

In particular, in order to rewrite claims 9, 14, 15, 34 and 35 in independent form including all limitations of the base claim and any intervening claims, applicant has rewritten claims 9, 14 and 34 in independent form including all the limitations of claim 1 on which they depend in a multiple dependent claim fashion. Applicant has also added claims 36 and 37 in which claims 9 and 14 have been rewritten in independent form including all the limitations of claims 1 and 28 on which they also depend in a multiple dependent claim fashion. Claim 15 has been amended to depend from rewritten claims 9 and 36, while added claim 35 depends from rewritten claim 34.

Rewritten claims 9, 14, 34, 36 and 37 are therefore allowable as rewritten in independent form including all limitations of their base and intermediate claims, while claims 15 and 35 are no longer dependent on rejected claims and therefore also stand allowable.

In particular, claim 9 is multiply dependent on claims 1 and 28. Claim 9 has been rewritten as an independent claim including the limitations of claim 1. Claim 9 has also been rewritten as newly presented claim 36 including the limitations of independent claim 1 and dependent claim 28.

Claim 14 is multiply dependent on claims 1 and 28. Claim 14 has been rewritten as an independent claim including the limitations of claim 1. Claim 14 has also been rewritten as newly presented claim 37 including the limitations of independent claim 1 and dependent claim 28.

Claim 15 is dependent on claim 14 which was multiply dependent on claims 1 and 28. Claim 15 remains dependent on amended dependent 14, and has been amended to be dependent in multiple dependent claim fashion on claim 37 which is the version of claim 14 rewritten as an independent claim including the limitations of claim 28.

**BEST AVAILABLE COPY****PATENT  
10/635,829**

Claim 34 is dependent on claim 33 and has been rewritten to include the limitations of independent claim 33. Claim 35 remains dependent on claim 34 which has been rewritten to include the limitations of claim 33.

Claims 9, 14, 15 and 34-37 therefore now stand allowable.

3. Claims 1, 6, 11, 13, 28 and 33 stand rejected under 35 U.S.C. §103(a) as obvious over *White et al.* USPN 6,247,633 (*White*) in view of *Schilling et al.* USPN 6,604,667 (*Schilling*) and *Krull et al.* DE 3,815,069 (*Krull*). Applicant continues to traverse these rejections. Claims 1 and 33 have been amended and claims 6, 11, 13 and 28 are dependent on claim 1.

*White* is said to teach welding by positioning an adhesive sealant (col. 1, lines 62-67) and friction stir welding to cure the sealant (Fig. 2, col. 3, line 47 – col. 4, line 29). Applicant again traverses the Examiner's argument that *White* teaches positioning a sealant or that friction stir welding (FSW) cures the sealant. The Examiner has held that there is admittedly no disclosure of corrosion protection in *White*. Applicant respectfully traverses these rejections and arguments, noting again as presented earlier, that *White* does not teach friction stir welding (FSW) a monomer to form a sealant but rather teaches the use of an adhesive for securing parts before FSW.

The Examiner seems to imply, by use of the parenthetical expression "(fills gaps)" that *White* teaches the use of the monomer to fill gaps. The Examiner is requested to explain what the parenthetical expression is intended to mean in the context of the rejected claims and indicate clearly what if any aspect of the rejection is intended to be illustrated by this parenthetical expression. That is, the rejection based on "fills gaps", if any, must be sufficiently clear so that applicant can respond to it.

*Shilling* is said to teach that aluminum and its alloys form oxides during welding which decrease strength at the joint. *Krull* is said to teach the use of a corrosion barrier sealant in welding aluminum.

However, the sections of *White* cited by the Examiner do not support the Examiner's contention that *White* teaches the use of an adhesive sealant or that friction stir welding cures the sealant. At col. 1, lines 62-67, *White* teaches only that:

"The interface can be flat or curved such as in lap welding of extruded or hydroformed hollow struts with cast aluminum nodes that fit within

**BEST AVAILABLE COPY****PATENT  
10/635,829**

the ends of the struts. Preferably, the lapped joint material is aluminum or magnesium alloys, but can be ferrous materials or any material that can be converted to a solid state deformable plastic condition."

Further, at col. 3, line 46 – col. 4 line 29, and more specifically at col. 4, lines 17-29, White teaches (emphasis added) that:

"This technique allows for an adhesive layer to be incorporated at the interface. **Such adhesive will be in the path of the rotating pin and will be broken up and distributed in the weld channel as harmless particles.** The adhesive can be self-curing or can be cured later after welding."

The adhesive taught by White to be broken up and distributed as harmless particles in the weld channel do not teach, suggest or render obvious the use of FSW to form a corrosion barrier sealant from a monomer. For example, it should be noted that one of the properties of the sealant layer, as taught by the applicant is to

[0014] "provide corrosion resistance for the fay surfaces of the joint by, for example, resisting the intrusion of moisture by capillary action."

The use of a plurality of distributed adhesive particles cannot be said to perform, or render obvious, the function of resisting intrusion of moisture by capillary action. Distributed particles would likely form capillary channels along the fay surfaces and would therefore likely aid rather than resist intrusion of moisture by capillary action.

Nothing in White, alone or in combination with Schilling and/or Krull, teaches or renders obvious using a monomer between surfaces and FSW to form a corrosion barrier sealant resisting the intrusion of moisture by capillary action as claimed in claim 1 as now amended. The adhesive to be broken up and distributed as harmless particles in the weld channel do not teach, suggest or render obvious the use of FSW to form a corrosion barrier sealant from a monomer.

Nothing in White, alone or in combination with Schilling and/or Krull, teaches or renders obvious selecting a monomer which forms a corrosion barrier and polymerizing the monomer by FSW to form a welded joint surrounded by a moisture resistant corrosion barrier sealant as claimed in claim 1 as now amended. The adhesive to be broken up and distributed as harmless particles in

**BEST AVAILABLE COPY****PATENT  
10/635,829**

the weld channel in White do not teach, suggest or render obvious the use of FSW to form a moisture resistant corrosion barrier sealant by polymerizing the monomer.

4. The Examiner has argued, in response to applicant's earlier position that White does not teach a sealant, that applicant has used the terms sealant and adhesive interchangeably in par.s 13 and 19. Applicant traverses this apparent holding. In summary, it is applicant's position that some monomers which can be cured to form corrosion barrier as claims may also be adhesive but the terms are not interchangeable.

In the relevant portion of par. 13, applicant stated

[0013] ... The elevated temperatures from this process may polymerize a sealant and/or adhesive monomer layer which, when cured, forms a corrosion protection layer, fay surface sealant layer 24.

The term "and/or" in this paragraph was intended to convey that the monomer (which may be cured to form a corrosion barrier sealant) may also be an adhesive. To avoid any possible ambiguity that the phrase used somehow equates sealants and adhesives, applicant has amended par. 13 to delete the phrase "and/or adhesive".

In the relevant portion of par. 19, applicant stated

[0019] ... In Fig. 2, "Z" shaped stiffener 15 may be welded, by FSW or similar processes by lap joint or other known welding technique, to surface 12 at joints 16, 18 or 20 by the application of a suitable adhesive or sealant which is cured to form fay surface sealant 24.

The term "adhesive or" was not intended to convey equivalents between sealants and adhesives but rather was intended to not exclude the concept presented in the previous paragraphs 15 through 18 that one particularly useful polymeric fay surface sealant may be formed by use of a fluoroelastomeric adhesive.

5. If this rejection is maintained, Applicant respectfully requests that the Examiner provide with greater specificity what aspect of White is said to teach the use of a sealant in light of White's teaching that the adhesive is broken up into harmless particles rather than becoming a corrosion barrier sealant.

**BEST AVAILABLE COPY****PATENT  
10/635,829**

Applicant respectfully requests that the rejections be reconsidered in light of the amendments and arguments made herein and that this application be passed to issue.

Respectfully Submitted,

Date: August 17, 2006

/Norman E. Brunell Reg. No. 26533/  
Norman E. Brunell, Reg. No. 26,533

**IRELL & MANELLA LLP**  
Customer No. 29000  
1800 Avenue of the Stars, Suite 900  
Los Angeles, CA 90067-4276  
Tel.: (310) 277-1010; Fax: (310) 203-7199  
E-mail: nbrunell@irell.com